

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-7. (Canceled)

8. (Original) An isolated microtubule motor protein, wherein the protein has greater than 70% amino acid sequence identity to SEQ ID NO:2 or SEQ ID NO:4 as measured using a sequence comparison algorithm.

9-18. (Canceled)

19. (New) A method for screening for modulators of HsKip3a, the method comprising:

(a) providing a HsKip3a protein that has (i) an amino acid sequence that has greater than 90% sequence identity to the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4 as measured using a sequence comparison algorithm, and (ii) microtubule stimulated ATPase activity; and

(b) contacting the HsKip3a protein with a candidate agent that is present at a test concentration and with the candidate agent that is present at a control concentration; and

(c) assaying for the level of HsKip3a activity at the test and control concentrations, wherein

the HsKip3a activity is a HsKip3a binding activity or ATPase activity, and

a change in HsKip3a activity between the test and control concentration indicates that the candidate agent is a modulator of HsKip3a.

20. (New) The method of claim 19, wherein the screening occurs in a multi-well plate as part of a high-throughput screen.

21. (New) The method of claim 19, wherein the HsKip3a protein comprises a HsKip3a motor domain, the motor domain comprising amino acids 5-342 or 26-354 of SEQ ID NO:2.

22. (New) The method of claim 19, wherein the HsKip3a protein has greater than 95% sequence identity to the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4.

23. (New) The method of claim 22, wherein the HsKip 3a protein has greater than 98% sequence identity to the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4.

24. (New) The method of claim 19, wherein the assay conducted at the control concentration is conducted in the absence of inhibitor.

25. (New) The method of claim 19, wherein assaying comprises detecting ADP formation.

26. (New) The method of claim 19, wherein assaying comprises detecting phosphate formation.

27. A method for screening for modulators of HsKip3a, the method comprising:

(a) providing a HsKip3a protein that has: (i) an amino acid sequence that has greater than 90% sequence identity to the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4 as measured using a sequence comparison algorithm, and (ii) microtubule stimulated ATPase activity; and

(b) contacting HsKip3a with a candidate agent and determining whether the candidate agent modulates the ATPase activity of HsKip3a.